WM-9

SERVICE MANUAL

Refer to MDR-W3 Service Manual issued previously for information of headphones supplied with this set.

AEP Model
UK Model
E Model

Photo: Silver type

SPECIFICATIONS

Tape Track: 4-track 2-channel stereo

Fast Winding Time: Approx. 2 min. 30 sec. with Sony cassette C-60

Frequency Response: 40 – 15,000 Hz
(with the TAPE selector set to METAL)
40 – 15,000 Hz
(with the TAPE selector set to NORM)

Power Output: 35 mW x 2 (max.)
25 mW x 2 (at 10% harmonic distortion) at dc operation

Power Requirements: 6 V dc, four
IEC designation R6 batteries (size AA)

Battery Life (continuous playback hours):
Approx. 5 hours with supplied Sony SUM-3 (NS) New Super batteries
Approx. 10 hours with Sony Eveready AM3 alkaline batteries
For maximum performance we recommend the use of alkaline batteries.

Dimensions: Approx. 91 x 142 x 36.5 mm (w/h/d)
($3\frac{5}{8}$ x $5\frac{5}{8}$ x $1\frac{7}{16}$ inches)
not incl. projecting parts and controls

Weight: Approx. 370 g (13.1 oz) incl. batteries, not incl. other accessories

0 dB = 0.775 V

Tape Transport Mechanism Type	MT-WM8-05

MICROFILM

STEREO CASSETTE PLAYER

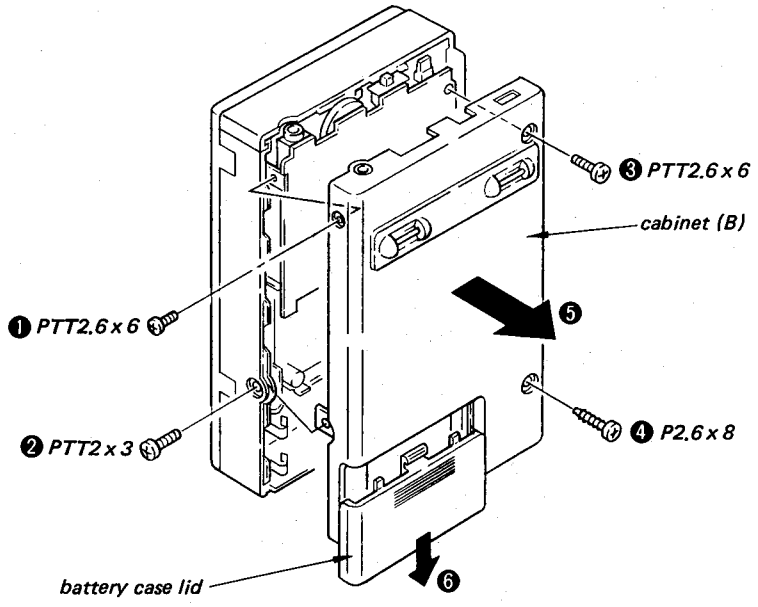
SONY®

TC

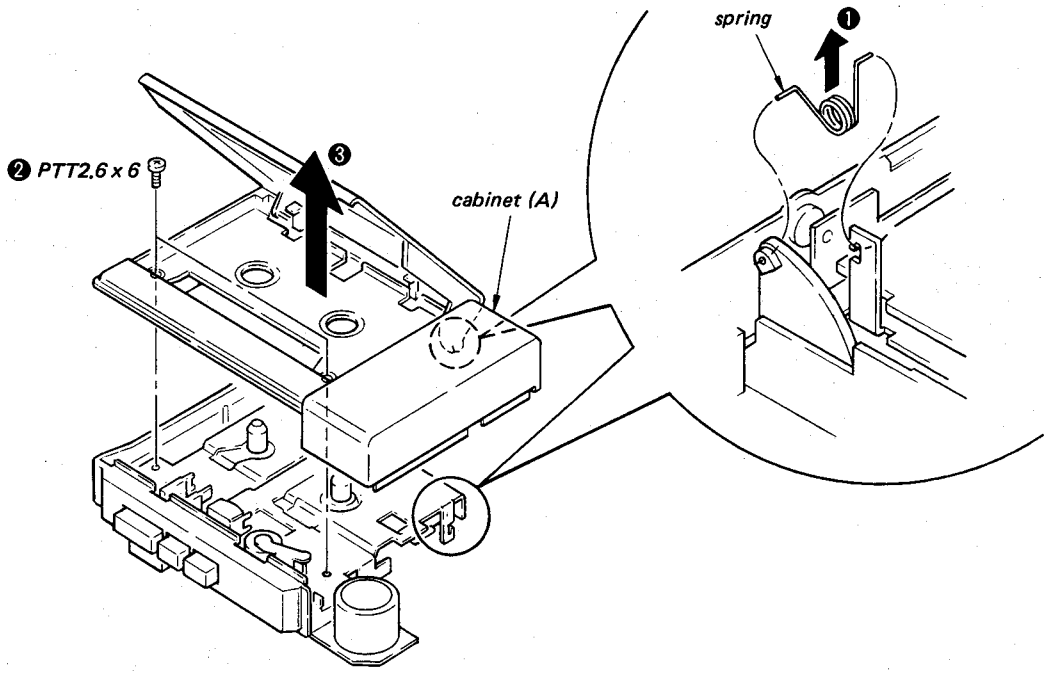
SECTION 1
DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

CABINET (B) AND BATTERY CASE LID REMOVAL



CABINET (A) REMOVAL



SECTION 2
ADJUSTMENTS

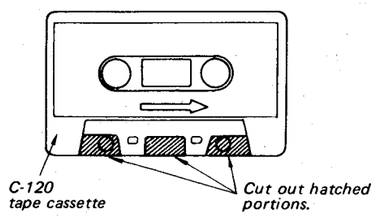
2-1. MECHANICAL ADJUSTMENTS

PRECAUTION

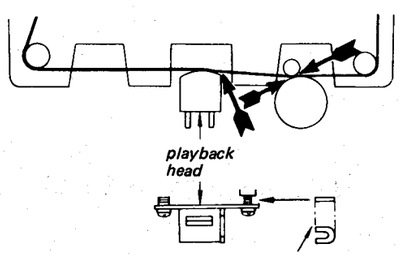
1. Clean the following parts with a denatured-alcohol-moistened swab:
   playback head — pinch roller
   capstan — idlers
   rubber belts
2. Demagnetize the playback head with a head demagnetizer. (Do not bring the head demagnetizer close to the erase head.)
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

Head Height Adjustment

1. Prepare an adjustment cassette as shown below.



2. In playback mode and viewing from the front, adjust the head heights to eliminate tape curl and tape twist at portions shown by arrow.



Torque Measurement

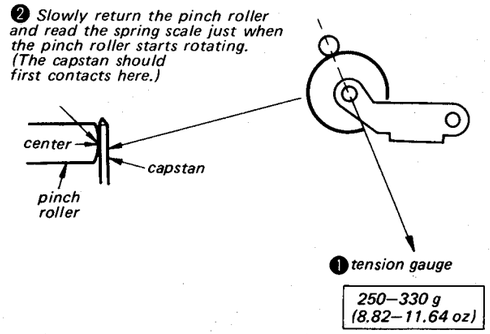
Torque	Meter Reading	Torque Meter
Forward	25–45 g·cm (0.34–0.62 oz.inch)	CQ-102B
Fast Forward and Rewind	more than 70 g·cm (0.97 oz inch)	CQ-201B
Back Tension	1–4 g·cm	CQ-102B

Tape Tension Measurement

Meter	Meter Reading
CQ-403A	more than 130 g (4.59 oz)

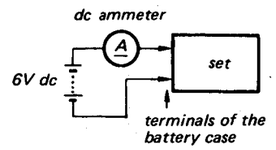
Pinch Roller Pressure Measurement

– Playback Mode –

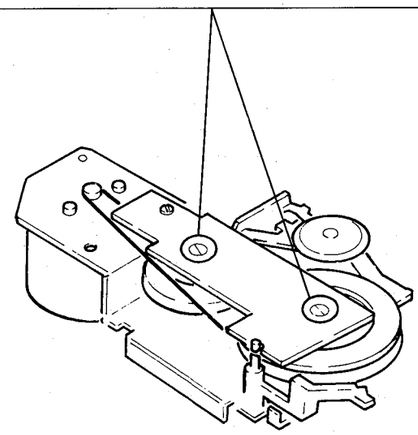

❷ Slowly return the pinch roller and read the spring scale just when the pinch roller starts rotating. (The capstan should first contacts here.)
center
capstan
pinch roller
❶ tension gauge
250–330 g (8.82–11.64 oz)

Flywheel Thrust Play Adjustment

– Playback Mode –



1. Turn the thrust screw counterclockwise until the screw tip leaves from the flywheel shaft.
2. Gradually turn the thrust screw clockwise to the position where the motor current suddenly increases.
3. Then, turn the thrust screw counterclockwise about ¼ turn from the position obtained in step 2.



MEMO

2-2. ELECTRICAL ADJUSTMENTS

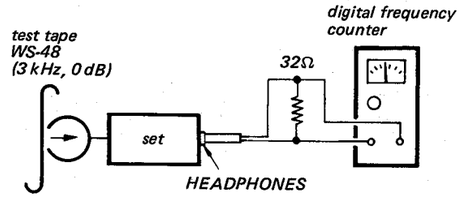
Tape Speed Adjustment

Setting:

VOL control: mechanical mid

Procedure:

Mode: playback

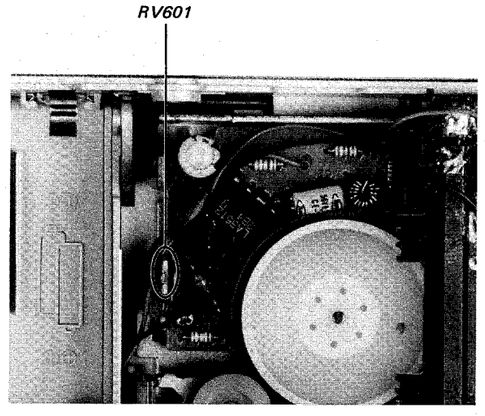


Specification:

Digital frequency counter
2,950 – 2,970 Hz

Frequency difference between beginning and end of tape should be within ±2% (60Hz).

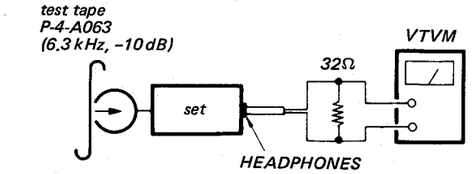
Adjustment Location:



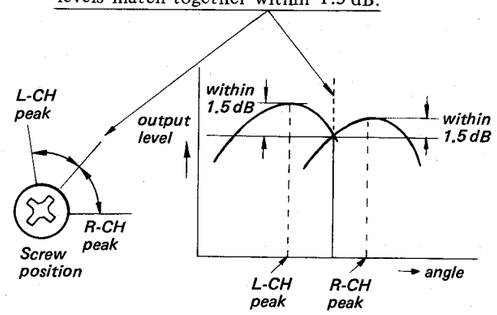
Playback Head Azimuth Adjustment

Procedure:

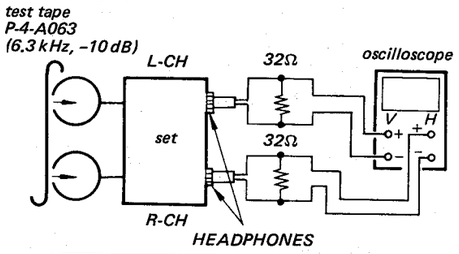
1. Mode: playback



2. Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 1.5 dB.

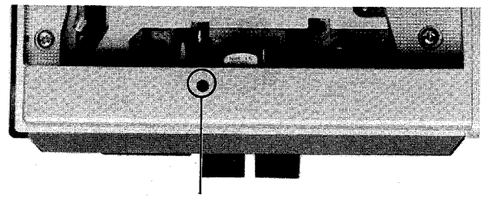


3. Phase Check
   Mode: playback



Screen pattern				
in phase	45°	90°	135°	180°
good			wrong	

Adjustment Location:



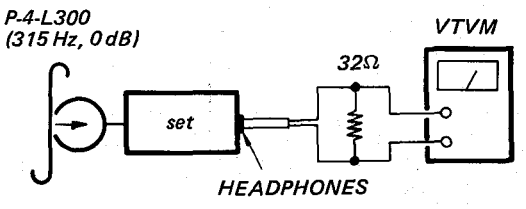
Muting Level Adjustment

Setting:

Power supply voltage: -4.0 V dc

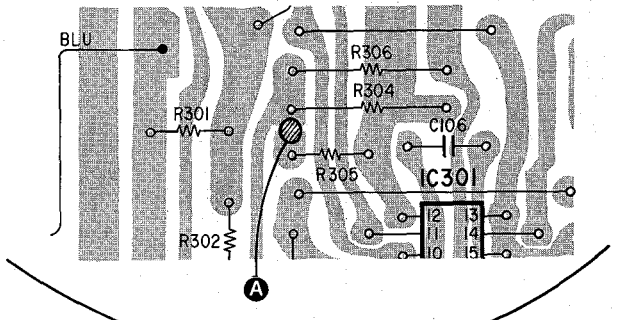
Procedure:

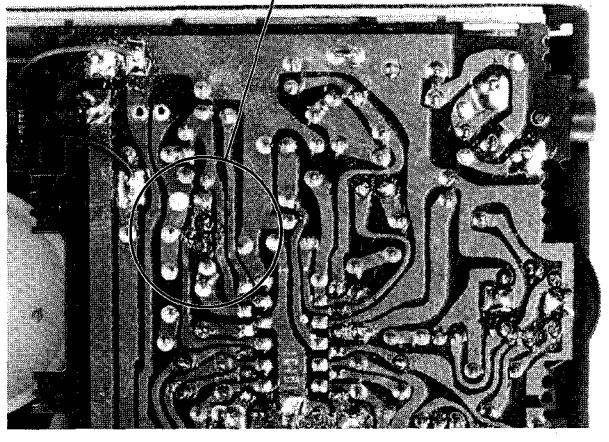
Mode: playback



Confirm that the signal is output at HEADPHONES.

If necessary, connect the pattern Ⓐ and confirm the above procedure.





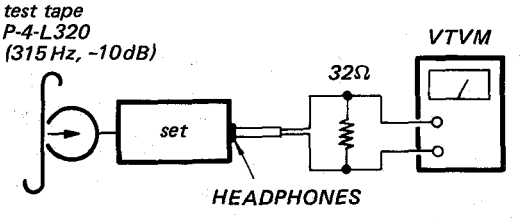
Playback Level Adjustment

Setting:

VOL control: maximum

Procedure:

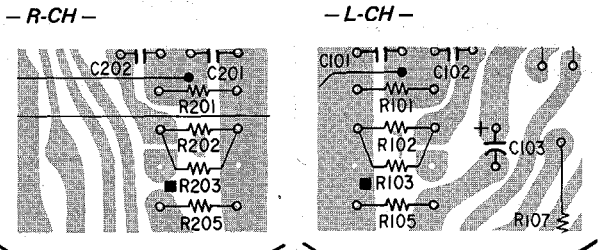
Mode: playback

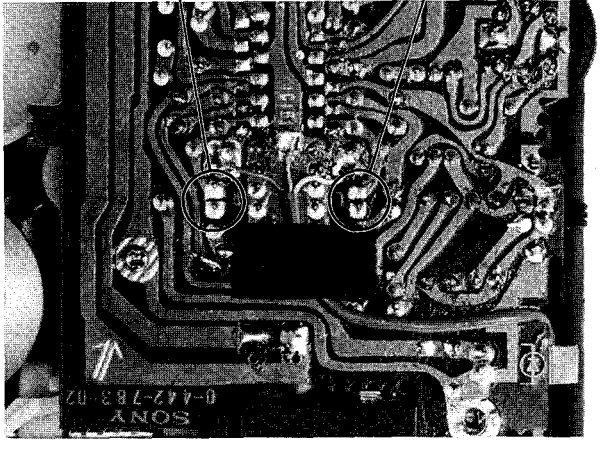


Specification:

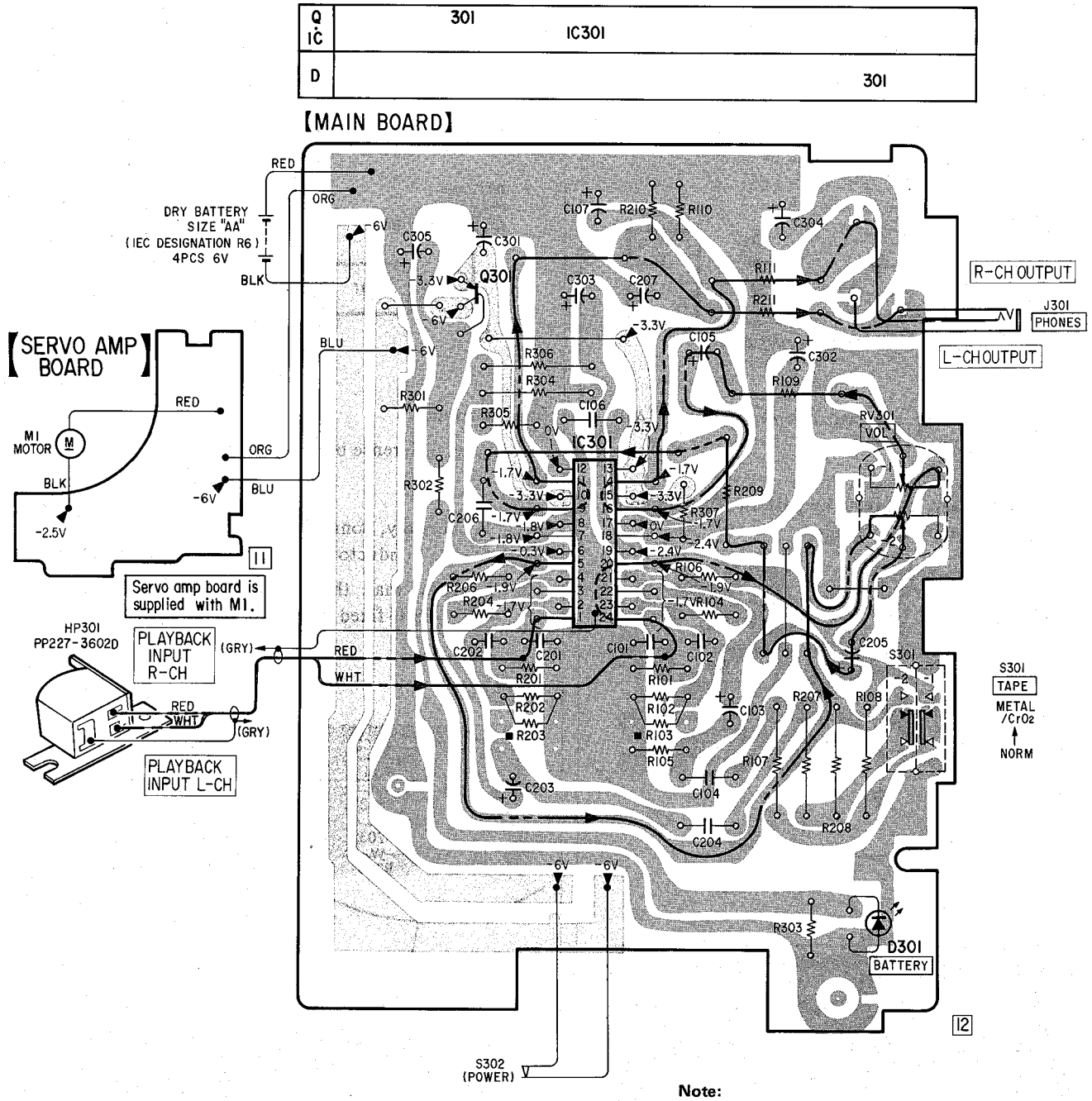
Level difference between channels:
less than 3 dB

1. If necessary, connect a resistor (R103 or R203) on the conductor side for lower level channel.
2. Confirm that the output level of HEADPHONES is fixed when repeating playback and stop.



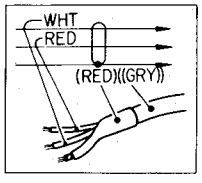


3-1. MOUNTING DIAGRAM



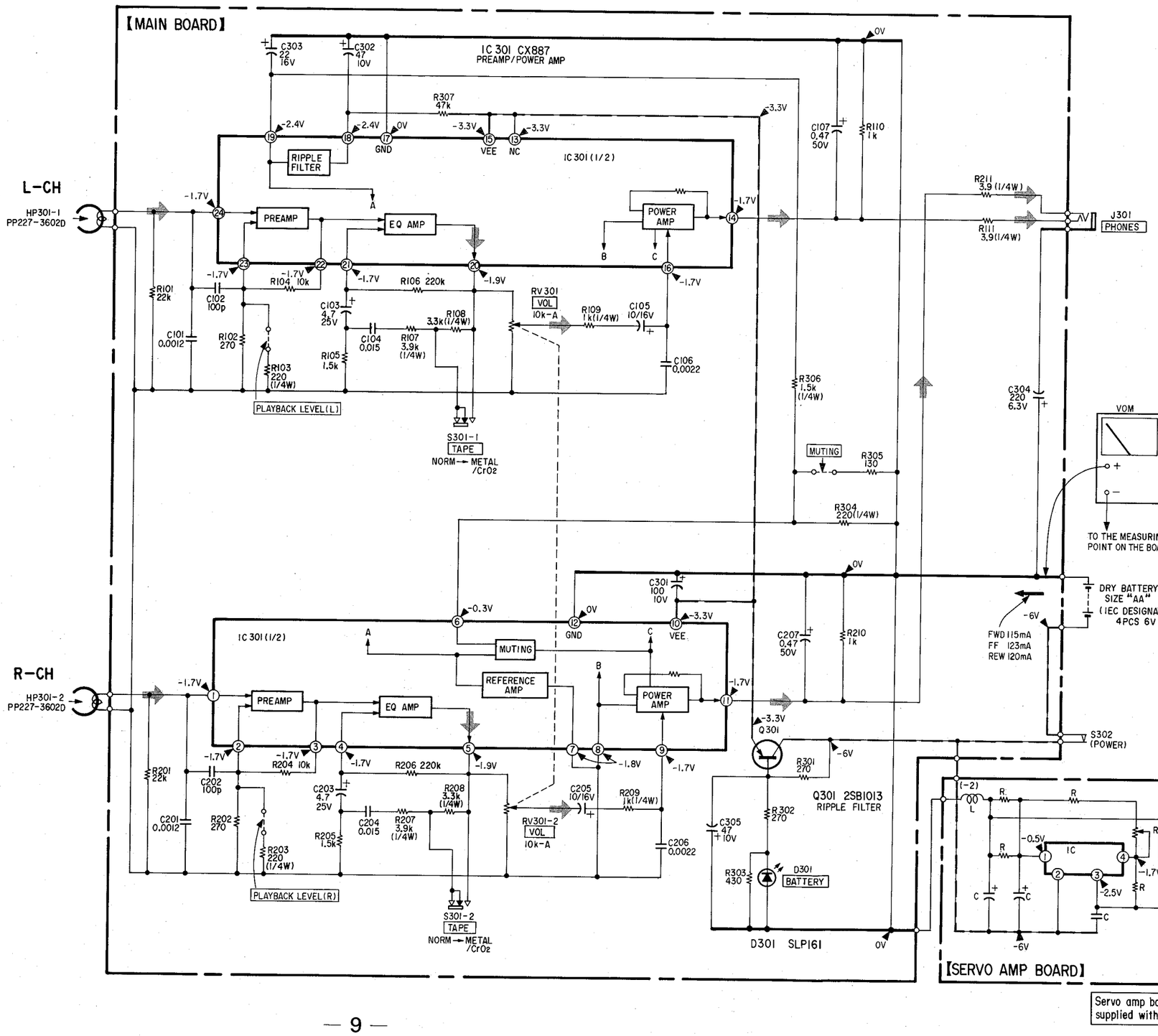
Note:

- Color code of sleeving over the end of the jacket.



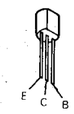
- ○— : parts extracted from the component side.
- ●— : parts extracted from the conductor side.
- ■ : part mounted on the conductor side.
- : B+ pattern
- ▬▶ : signal path
- ▬▶ : L-CH signal path
- ▬▶ : R-CH signal path

3-2. SCHEMATIC DIAGRAM

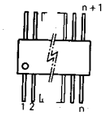


• Semiconductor Lead Layouts

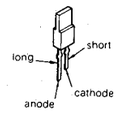
2SB1013



CX-887



SLP-161B



Note:

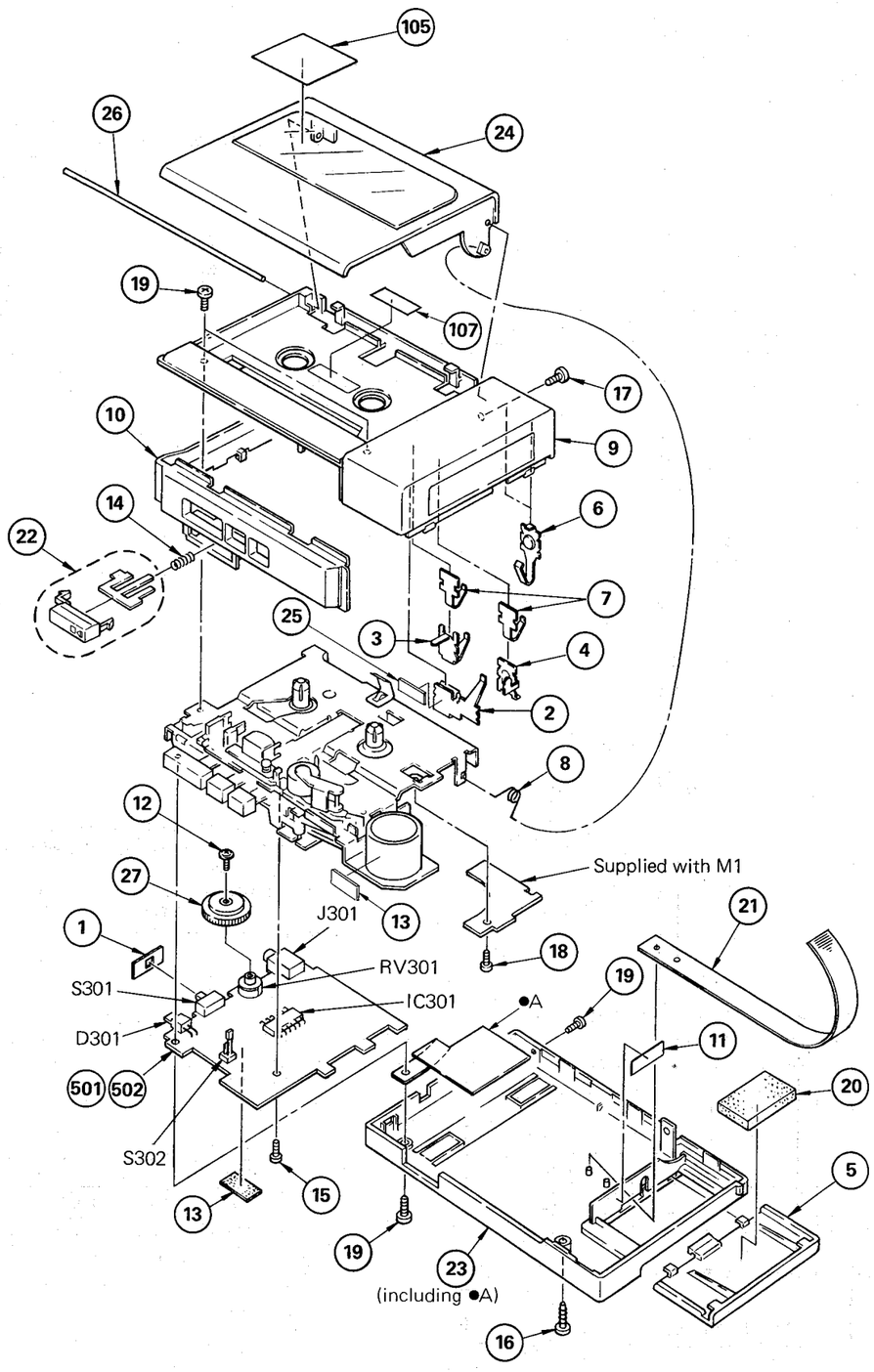
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, 1/6 W unless otherwise noted. kΩ : 1000 Ω, MΩ : 1000 kΩ
- ▭ : panel designation.
- ▭ : adjustment for repair.
- ▬ ▬ : B- bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no-signal conditions with a VOM (50 kΩ/V).
- Voltage variations may be noted due to normal production tolerances.
- Total current is measured with no cassette installed.
- Switch

Ref. No.	Switch	Position
S301	TAPE	NORM
S302	POWER	ON

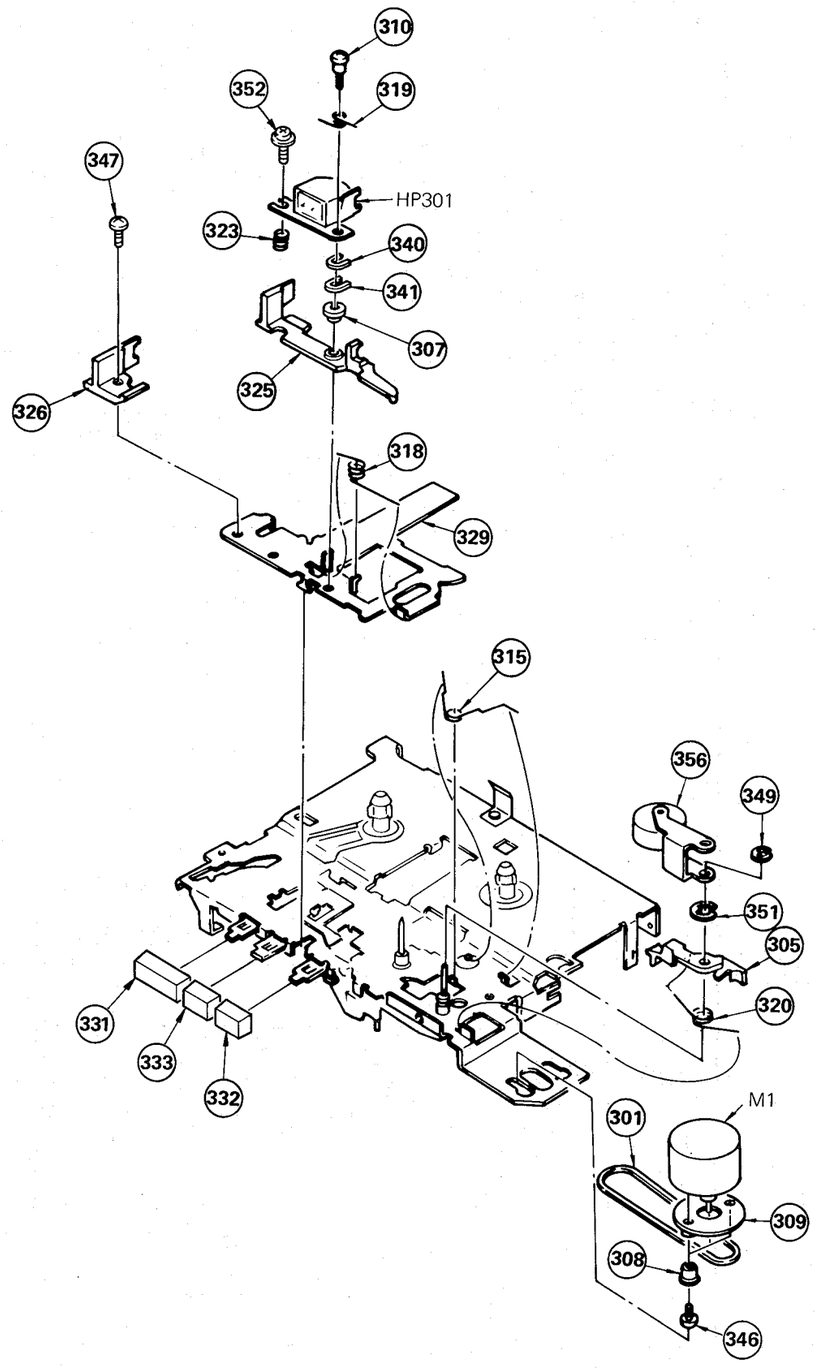
- ➡ : signal path

Note: Voltages are measured with a VOM (50kΩ/V).

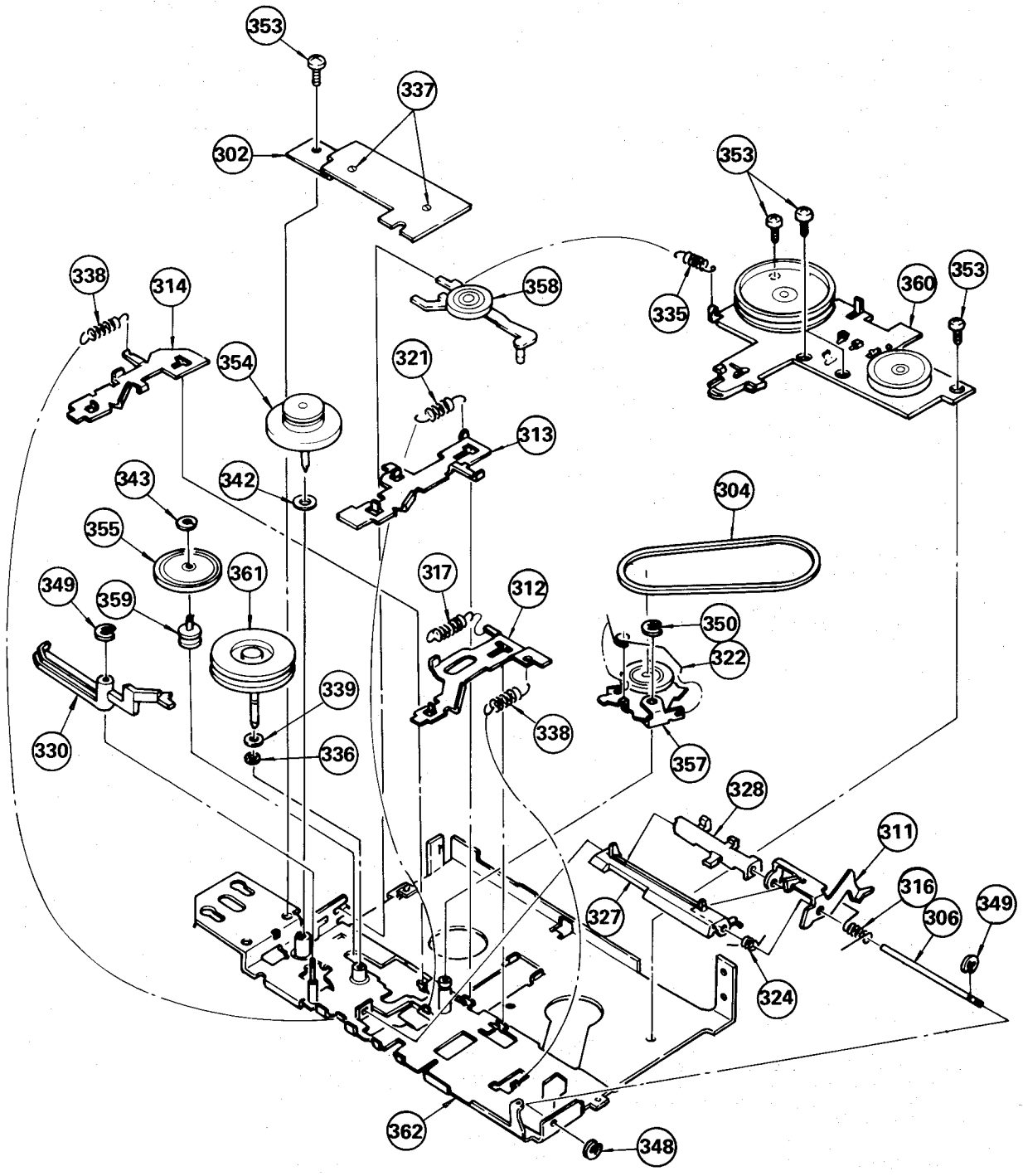
(1)


105
26
24
19
107
17
10
9
14
6
22
7
25
3
4
2
8
12
27
Supplied with M1
J301
13
21
1
18
RV301
S301
IC301
●A
19
D301
11
501
502
20
S302
15
5
13
19
23
(including ●A)
16

(2)


310
352
319
347
HP301
323
340
341
307
325
326
318
329
315
356
349
351
305
320
331
333
332
301
M1
309
308
346

(3)


353
337
302
353
338
314
358
335
360
353
354
321
313
343
342
304
355
361
317
312
349
359
350
322
339
338
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336
357
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311
316
327
306
349
324
362
348

GENERAL SECTION

No.	Part No.	Description
1	3-305-653-00	PLATE (A), BLIND
2	3-309-406-00	TERMINAL BOARD (B), BATTERY
3	3-309-407-00	TERMINAL BOARD (C), BATTERY
4	3-309-408-00	TERMINAL BOARD (D), BATTERY
5	3-309-417-41	(SLIVER)...LID, BATTERY CASE
5	3-309-417-51	(RED).....LID, BATTERY CASE
5	3-309-417-61	(BLUE).....LID, BATTERY CASE
6	3-309-442-00	TERMINAL BOARD, BATTERY (A)
7	3-309-443-00	SPRING, LEAF
8	3-310-718-00	SPRING
9	3-316-108-11	(SILVER)...CABINET (A)
9	3-316-108-21	(RED).....CABINET (A)
9	3-316-108-31	(BLUE).....CABINET (A)
10	3-316-110-11	PANEL, CONTROL
11	3-527-213-00	LABEL, SERIAL NUMBER
12	3-892-318-00	SCREW, SMALL
13	3-831-441-XX	CUSHION
14	3-849-356-00	SPRING, COIL
15	7-621-255-15	SCREW +P 2X3
16	7-685-134-14	SCREW +P 2.6X8 TYPE2 NON-SLIT
17	7-685-780-04	SCREW +PTT 2X3 (S)
18	7-685-781-01	SCREW +PTT 2X4 (S)
19	7-685-792-04	SCREW +PTT 2.6X6 (S)
20	9-911-815-02	CUSHION, BATTERY LID
21	9-911-816-01	RIBBON, BATTERY
22	A-3239-154-A	BUTTON ASSY, STOP
23	X-3316-103-1	(SLIVER)...CABINET (B) ASSY
23	X-3316-103-2	(RED).....CABINET (B) ASSY
23	X-3316-103-3	(BLUE).....CABINET (B) ASSY
24	X-3316-104-1	(SILVER)...LID ASSY, CASSETTE
24	X-3316-105-1	(RED).....LID ASSY, CASSETTE
24	X-3316-106-1	(BLUE).....LID ASSY, CASSETTE
25	9-911-839-XX	RUBBER (B)
26	3-310-707-00	SHAFT, CASSETTE LID
27	3-316-423-00	KNOB, VOLUME

ACCESSORY & PACKING MATERIAL

No.	Part No.	Description
101	3-316-112-00	CUSHION
102	3-316-117-01	INDIVIDUAL CARTON
103	3-316-115-00	SPACER
104	3-570-631-71	BAG, POLYETHYLENE
105	3-703-707-01	STICKER, SONY SYMBOL (21)
106	3-572-854-00	BELT, SHOULDER
107	3-578-101-00	(RED,BLUE)....PLATE, ORNAMENTAL
108	3-701-311-00	(RED).....LABEL, PRODUCT COLOR
109	3-701-314-00	(BULE).....LABEL, PRODUCT COLOR
110	3-703-729-00	(SILVER)...LABEL (SMALL), COLOR
111	3-773-617-11	(AEP).....MANUAL, INSTRUCTION
112	3-773-617-41	(UK).....MANUAL, INSTRUCTION
113	3-773-617-51	(AEP,E)....MANUAL, INSTRUCTION
114	3-793-828-11	QUESTIONNAIRE
115	8-951-151-91	MDR-W3 SET

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked " ♦ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.
- If there are two or more same circuitsin a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:

MF:μF, PF:μμF.

RESISTORS

- All resistors are in ohms.
- F : nonflammable

COILS

- MMH : mH, UH : μH

SEMICONDUCTORS

In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC,
UPD···: μPD···

MECHANISM SECTION

No.	Part No.	Description
301	3-306-803-00	BELT (42.5X1)
302 ♦	3-306-806-00	RETAINER, FLYWHEEL
303	.....	
304	3-306-816-00	BELT (30.5X0.9)
305	3-306-823-00	LEVER, SHUT-OFF
306	3-306-826-00	SHAFT, LOCK PLATE
307	3-306-827-00	COLLAR, HEAD
308 ♦	3-306-828-00	COLLAR, MOTOR
309	3-306-829-00	CUSHION, MOTOR
310	3-306-830-00	SCREW, FITTING, HEAD
311	3-306-842-00	LEVER, EJECT
312	3-306-853-00	LEVER, FWD
313	3-306-855-00	LEVER, REW
314	3-306-856-00	LEVER, FF
315	3-306-858-00	SPRING
316	3-306-859-00	SPRING
317	3-306-861-00	SPRING, TENSION
318	3-306-862-00	SPRING
319	3-306-863-00	SPRING
320	3-306-864-00	SPRING
321	3-306-866-00	SPRING, TENSION
322	3-306-867-00	SPRING
323	3-306-872-00	SPRING, COMPRESSION
324	3-306-876-00	SPRING
325	3-306-878-00	LEVER, DETECTION
326	3-306-879-00	GUIDE, TAPE
327	3-306-880-00	PLATE, LOCK
328	3-306-896-00	SLIDER, SE
329 ♦	3-306-882-00	CHASSIS, HEAD
330	3-306-883-00	LEVER, RELEASE
331	3-316-104-00	BUTTON, PLAY
332	3-316-105-00	BUTTON, FF
333	3-316-106-00	BUTTON, REW
334	3-508-108-XX	SPRING, TENSION
335	3-531-794-00	SPRING, TENSION
336	3-545-715-00	WASHER
337	3-547-625-00	SCREW, THRUST ADJUST
338	3-564-949-00	SPRING, TENSION
339	3-701-437-11	WASHER
340	3-578-138-01	SEAM
341	3-578-138-11	SEAM
342	3-578-223-11	WASHER
343	3-590-523-00	WASHER, STOPPER
344	.....	
345	3-701-467-00	SCREW, LOCK

MECHANISM SECTION

No.	Part No.	Description
346	7-627-552-57	SCREW, PRECISION +P 1.7X5
347	7-627-553-37	SCREW, TOTSU P 2X3
348	7-624-101-01	RING, RETAINING E-1.2
349	7-624-102-04	STOP RING 1.5, TYPE -E
350	7-624-105-04	STOP RING 2.3, TYPE -E
351	7-624-106-04	STOP RING 3.0, TYPE -E
352	7-621-995-35	SCREW, PWH 2X5
353	7-685-780-04	SCREW, TOTSU PTT 2X3
354	X-3306-804-0	FLYWHEEL (B) ASSY
355	X-3306-807-0	IDLER ASSY, FWD
356	X-3306-813-0	PINCH ROLLER ASSY
357	X-3306-815-0	LEVER ASSY, REW IDLER
358	X-3306-816-0	LEVER ASSY, FF IDLER
359 ♦	X-3306-817-0	SHAFT ASSY, T IDLER
360	X-3306-820-0	BEARING ASSY, REEL
361	X-3306-830-0	FLYWHEEL (A) ASSY
362 ♦	X-3309-601-0	CHASSIS ASSY

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked " ♦ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.
- If there are two or more same circuitsin a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:

MF:μF, PF:μμF.

RESISTORS

- All resistors are in ohms.
- F : nonflammable

COILS

- MMH : mH, UH : μH

SEMICONDUCTORS

In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC,
UPD···: μPD···

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
501	♦;1-611-265-00	PC BOARD, AUDIO (MAIN)			
502	♦;A-3260-200-A	MOUNTED PCB, MAIN			
C101	1-102-118-00	CERAMIC	0.0012MF	10%	50V
C102	1-102-106-00	CERAMIC	100PF	10%	50V
C103	1-123-616-00	ELECT	4.7MF	20%	25V
C104	1-161-033-00	CERAMIC	0.015MF	20%	25V
C105	1-123-356-00	ELECT	10MF	20%	16V
C106	1-102-121-00	CERAMIC	0.0022MF	10%	50V
C107	1-123-351-00	ELECT	0.47MF	20%	50V
C201	1-102-118-00	CERAMIC	0.0012MF	10%	50V
C202	1-102-106-00	CERAMIC	100PF	10%	50V
C203	1-123-328-00	ELECT	4.7MF	20%	25V
C204	1-161-033-00	CERAMIC	0.015MF	20%	25V
C205	1-123-617-00	ELECT	10MF	20%	16V
C206	1-102-121-00	CERAMIC	0.0022MF	10%	50V
C207	1-123-351-00	ELECT	0.47MF	20%	50V
C301	1-123-307-00	ELECT	100MF	20%	10V
C302	1-123-306-00	ELECT	47MF	20%	10V
C303	1-123-317-00	ELECT	22MF	20%	16V
C304	1-123-296-00	ELECT	220MF	20%	6.3V
C305	1-123-306-00	ELECT	47MF	20%	10V
D301	8-719-901-96	DIODE SLP161B			
HP301	8-829-373-60	HEAD, PLAYBACK, STEREO			
IC301	8-759-908-82	IC CX-887			
J301	1-507-915-00	JACK (PHONES)			
M1	8-835-075-11	MOTOR, DC (DNE-5600B)			
Q301	8-729-801-83	TRANSISTOR 2SB1013			
R101	1-247-863-00	CARBON	22K	5%	1/6W
R102	1-247-817-00	CARBON	270	5%	1/6W
R103	1-247-815-00	CARBON	220	5%	1/6W
R104	1-247-855-00	CARBON	10K	5%	1/6W
R105	1-247-835-00	CARBON	1.5K	5%	1/6W
R106	1-247-887-00	CARBON	220K	5%	1/6W
R107	1-246-487-00	CARBON	3.9K	5%	1/4W
R108	1-246-485-00	CARBON	3.3K	5%	1/4W
R109	1-246-473-00	CARBON	1K	5%	1/4W
R110	1-247-831-00	CARBON	1K	5%	1/6W
R111	1-246-415-00	CARBON	3.9	5%	1/4W
R201	1-247-863-00	CARBON	22K	5%	1/6W
R202	1-247-817-00	CARBON	270	5%	1/6W
R203	1-247-815-00	CARBON	220	5%	1/6W
R204	1-247-855-00	CARBON	10K	5%	1/6W

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R205	1-247-835-00	CARBON	1.5K	5%	1/6W
R206	1-247-887-00	CARBON	220K	5%	1/6W
R207	1-246-487-00	CARBON	3.9K	5%	1/4W
R208	1-246-485-00	CARBON	3.3K	5%	1/4W
R209	1-246-473-00	CARBON	1K	5%	1/4W
R210	1-247-831-00	CARBON	1K	5%	1/6W
R211	1-246-415-00	CARBON	3.9	5%	1/4W
R301	1-247-817-00	CARBON	270	5%	1/6W
R302	1-247-817-00	CARBON	270	5%	1/6W
R303	1-247-822-00	CARBON	430	5%	1/6W
R304	1-246-457-00	CARBON	220	5%	1/4W
R305	1-247-810-00	CARBON	130	5%	1/6W
R306	1-246-477-00	CARBON	1.5K	5%	1/4W
R307	1-247-871-00	CARBON	47K	5%	1/6W
RV301	1-230-165-00	RES, VAR, CARBON 10K/10K (VOL)			
S301	1-554-123-00	SWITCH, SLIDE			
S302	1-554-024-00	SWITCH, LEAF (POWER)			

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